

Response to Office Action of February 28, 2005  
U.S. Application No.: 10/722,553

Attorney Docket No.: FSF-03214

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. A photothermographic material comprising, on a same surface of a substrate, a photosensitive silver halide, a non-photosensitive organic silver salt, a reducing agent, a development accelerator, and a binder, wherein said binder is dispersed as a latex and the material comprising comprises, as said binder, a polymer formed by copolymerizing a monomer represented by the following general formula (M) in an amount from 10 to 70 mass%:

General formula (M)



wherein in general formula (M), R<sup>01</sup> represents a hydrogen atom, an alkyl group having 1 to 6 carbon atoms, a halogen atom, or a cyano group; and R<sup>02</sup> represents an alkyl group having 1 to 6 carbon atoms, a halogen atom or a cyano group, R<sup>01</sup> and R<sup>02</sup> each being selected from the group consisting of a hydrogen atom, an alkyl group having 1 to 6 carbon atoms, a halogen atom, and a cyano group, provided that both R<sup>01</sup> and R<sup>02</sup> are not hydrogen atoms at the same time.

2. A photothermographic material according to claim 1, wherein said development accelerator is a compound selected from compounds represented by the following general formula (A-1):

General formula (A-1):



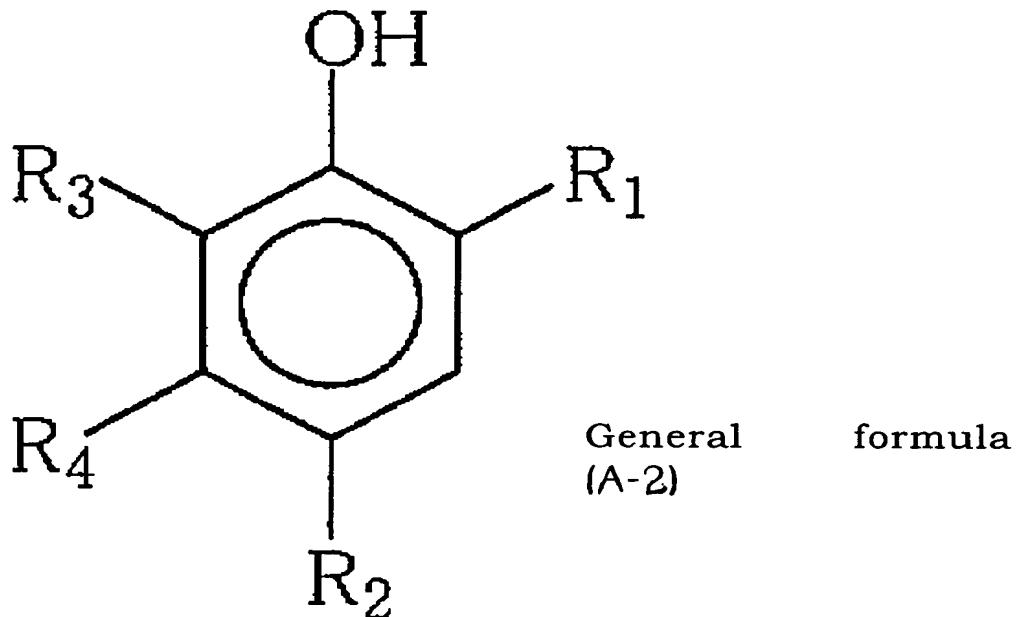
wherein in general formula (A-1), Q<sub>1</sub> represents an aromatic group or a heterocyclic group bonded by a carbon atom thereof to -NHNH-Q<sub>2</sub>; and Q<sub>2</sub> represents a carbamoyl group, an acyl group, an alkoxy carbonyl group, an aryloxycarbonyl group, a sulfonyl group or a sulfamoyl group.

3. A photothermographic material according to claim 1, wherein said development accelerator is a compound selected from compounds represented

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by the following general formula (A-2):



wherein in general formula (A-2), R<sub>1</sub> represents an alkyl group, an acyl group, an acylamino group, a sulfonamide group, an alkoxy carbonyl group, or a carbamoyl group; R<sub>2</sub> represents a hydrogen atom, a halogen atom, an alkyl group, an alkoxy group, an aryloxy group, an alkylthio group, an arylthio group, an acyloxy group or a carbonate ester group; and R<sub>3</sub> and R<sub>4</sub> each independently represent a group that can substitute the benzene ring and may be mutually bonded to form a condensed ring.

4. A photothermographic material according to claim 1, wherein said non-photosensitive organic silver salt is an organic acid silver salt with a content of silver behenate equal to or higher than 90 mol.%.

5. A photothermographic material according to claim 1, wherein said non-photosensitive organic silver salt is an organic acid silver salt with a content of silver behenate equal to or higher than 95 mol.%.

6. A photothermographic material according to claim 1, wherein said

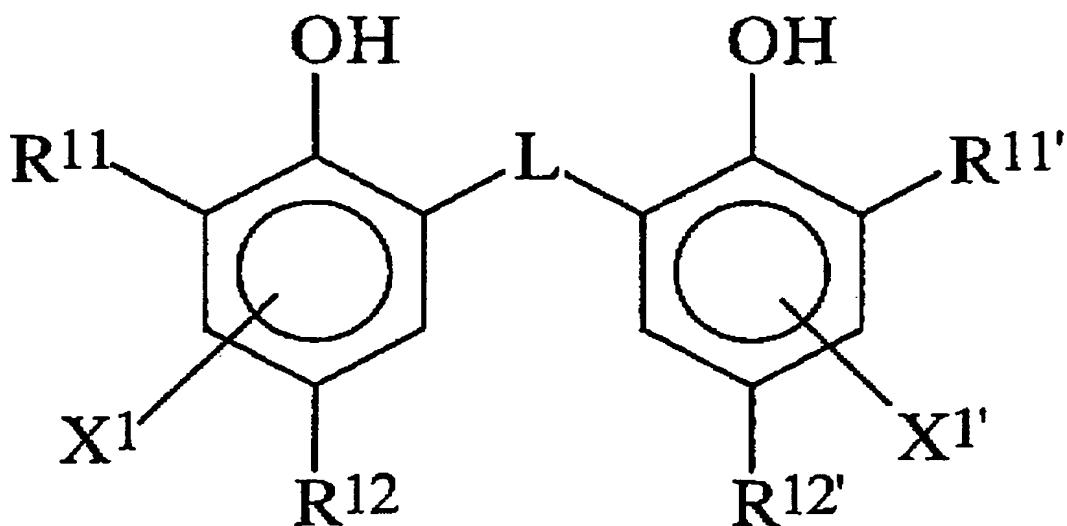
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polymer has a glass transition temperature within a range from -30° to 70°C.

7. A photothermographic material according to claim 1, wherein said polymer has a glass transition temperature within a range from -10° to 35°C.

8. A photothermographic material according to claim 1, wherein said reducing agent is a compound represented by the following general formula (R):



wherein in general formula (R), R<sup>11</sup> and R<sup>11'</sup> each independently represent an alkyl group having 1 to 20 carbon atoms; R<sup>12</sup> and R<sup>12'</sup> each independently represent a hydrogen atom or a substituent that can substitute the benzene ring; L represents an -S- group or a -CHR<sup>13</sup>- group; R<sup>13</sup> represents a hydrogen atom or an alkyl group having 1 to 20 carbon atoms; and X<sup>1</sup> and X<sup>1'</sup> each independently represent a hydrogen atom or a group that can substitute the benzene ring.

9. A photothermographic material according to claim 8, wherein, in the reducing agent represented by general formula (R), R<sup>11</sup> and R<sup>11'</sup> each independently represent a secondary or tertiary alkyl group having 3 to 15

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carbon atoms.

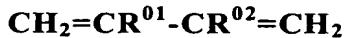
10. A photothermographic material according to claim 1, further comprising a phthalocyanine dye.

11. A photothermographic material according to claim 1, wherein in general formula (M), R<sup>01</sup> is a hydrogen atom and R<sup>02</sup> is a methyl group.

12. A photothermographic material according to claim 1, wherein said polymer is formed by copolymerizing a monomer having an acid group in an amount from 1 to 20 mass%.

13. A photothermographic material comprising, on a same surface of a substrate, a photosensitive silver halide, a non-photosensitive organic silver salt, a reducing agent and a binder, the material comprising, as said binder, a polymer latex formed by copolymerizing a monomer represented by the following general formula (M) in an amount from 10 to 70 mass% and having a number-averaged particle size (dn) from 30 to 500 nm:

General formula (M)



wherein in general formula (M), R<sup>01</sup> represents a hydrogen atom, an alkyl group having 1 to 6 carbon atoms, a halogen atom, or a cyano group; and R<sup>02</sup> represents an alkyl group having 1 to 6 carbon atoms, a halogen atom or a cyano group, R<sup>01</sup> and R<sup>02</sup> each being selected from the group consisting of a hydrogen atom, an alkyl group having 1 to 6 carbon atoms, a halogen atom, and a cyano group, provided that both R<sup>01</sup> and R<sup>02</sup> are not hydrogen atoms at the same time.

14. A photothermographic material according to claim 13, wherein the polymer latex has a ratio (dv/dn) of a volume-weighted average particle size (dv) to a number-averaged particle size (dn) within a range from 1.00 to 1.10.

15. A photothermographic material according to claim 13, wherein the polymer latex contains halogen ions in an amount of 500 ppm or less with respect to the latex.

16. A photothermographic material comprising, on a same surface of a substrate, a photosensitive silver halide, a non-photosensitive organic silver

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salt, a reducing agent and a binder, the material comprising, as said binder, a polymer latex formed by copolymerizing a monomer represented by the following general formula (M) in an amount from 10 to 70 mass%, and emulsion polymerized with a peroxide as a polymerization initiator in an amount of 0.3 to 2 mass% with respect to the monomer:

General formula (M)



wherein in general formula (M),  $\text{R}^{01}$  represents a hydrogen atom, an alkyl group having 1 to 6 carbon atoms, a halogen atom, or a cyano group; and  $\text{R}^{02}$  represents an alkyl group having 1 to 6 carbon atoms, a halogen atom or a cyano group,  $\text{R}^{01}$  and  $\text{R}^{02}$  each being selected from the group consisting of a hydrogen atom, an alkyl group having 1 to 6 carbon atoms, a halogen atom, and a cyano group, provided that both  $\text{R}^{01}$  and  $\text{R}^{02}$  are not hydrogen atoms at the same time.

17. A photothermographic material according to claim 16, wherein said polymer latex includes halogen ions in an amount of 500 ppm or less with respect to the latex.

18. A photothermographic material according to claim 13, wherein said polymer latex has a glass transition temperature within a range from -30° to 70°C.

19. A photothermographic material according to claim 13, wherein, in said general formula (M),  $\text{R}^{01}$  is a hydrogen atom and  $\text{R}^{02}$  is a methyl group.

20. A photothermographic material according to claim 13, wherein said polymer is formed by copolymerizing a monomer having an acid group in an amount from 1 to 20 mass%.

21. A photothermographic material according to claim 13, comprising halogen ions in an amount of 1000 ppm or less with respect to the organic silver salt.